Comments of the Natural Resources Defense Council (NRDC)
on the Use of Portfolio Analysis in Electric Utility Resource Planning

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1. Introduction and Summary

The Natural Resources Defense Council (NRDC) appreciates the opportunity to offer these comments on the topics discussed at the California Energy Commission's (Commission or CEC) committee workshop on the use of portfolio analysis in electric utility resource planning held on July 11, 2007 for the *2007 Integrated Energy Policy Report (IEPR)*. NRDC is a nonprofit membership organization with a long-standing interest in minimizing the societal costs of the reliable energy services that Californians demand. We focus on representing our more than 124,000 California members' interest in receiving affordable energy services and reducing the environmental impact of California's energy consumption.

We applaud the Commission for investigating portfolio analysis in the draft staff paper "Portfolio Analysis and Its Potential Application to Utility Long-Term Planning" (draft paper) and for the effort to develop a preliminary portfolio analysis for California in the draft consultant report "A Mean-Variance Portfolio Optimization of California's Generation Mix to 2020: Achieving California's 33 Percent Renewable Portfolio Standard Goal" (draft consultant report). The use of a portfolio analysis approach in evaluating California's energy mix is critical to understand the important role that energy efficiency and renewable energy can play in reducing total system risk and in providing significant additional benefits. We summarize our comments below:

- We recommend that the Commission work with the California Public Utilities Commission and the state's utilities to incorporate portfolio analysis techniques in developing their 2008 Long-Term Procurement Plans.
- Energy efficiency should be included in subsequent portfolio analyses as a resource.
- The quantity of energy efficiency included in the portfolio analyses should be clearly defined in the final consultant report.
- The draft staff report inaccurately describes Senate Bill 1368.
- The long-term procurement plans summarized in Chapter 4 of the draft staff report may be out of date.

2. We recommend that the Commission work with the California Public Utilities Commission and the state's utilities to incorporate portfolio analysis techniques in the development of the 2008 Long-Term Procurement Plans.

The draft staff report notes that "[o]ver the next several years, California IOUs will have a significant amount of energy to procure, with a large percentage coming from "generic" sources (resources that are as yet undetermined)" (p. 5). As California works to meet the emission limit set in Assembly Bill 32 and to meet Renewable Portfolio Standard (RPS) requirements, it is important that utilities fully evaluate the risks and benefits of their planned resource portfolios. As further noted in the draft staff report: "[modern portfolio theory] enables a decision maker to assess potential changes to a portfolio's risks and costs brought about by adding assets that have their own individual risk and cost profiles" (p. 2). NRDC believes that portfolio analysis can serve as a valuable tool in resource planning and we encourage the Commission to work with the California Public Utilities Commission and the state's investor owned utilities (IOUs) to incorporate some level of portfolio analysis in their 2008 Long-Term Procurement Plans (LTPP).

While there were many concerns voiced at the July 11, 2007 workshop regarding the assumptions that informed the draft consultant report, we believe that the value of portfolio analysis is clear. Working with the IOUs to develop a more detailed portfolio analysis approach that can inform their procurement decisions will help the California develop a lower risk and lower cost resource mix that achieves the state's aggressive goals for greenhouse gas emissions reductions and clean and efficient energy.

3. Energy efficiency should be included in subsequent portfolio analyses as a resource.

The draft consultant report evaluates increased penetration of renewable resources in California. Given the assumptions made, the draft consultant report concludes that "adding non-fossil fuel, fixed-cost technologies (such as wind energy) to a risky generating portfolio lowers expected costs at any level of risk, even if the non-fossil technology costs more when assessed on a stand-alone basis" (p. 39). We support these conclusions. While it is important to understand the role that renewable generation technologies can play in providing Californians with a less risky generation mix that delivers electricity at a lower cost, energy efficiency should also be evaluated as a resource, consistent with its role as California's first priority resource in the loading order.

Energy efficiency has many of the benefits of renewable energy, such as being a fixed-cost technology that protects against risk associated with variable fuel costs, yet it delivers these benefits at significantly less cost. The cost of energy efficiency investments in California has averaged 2.5 to 3.5 cents per kWh over their lifetime, less than half the cost of building and fueling the power plants that would have otherwise been needed to supply the same resource.[1] In addition, the investor-owned utilities are required to include energy efficiency in their long-term procurement plans. As such, we strongly encourage the Commission to pursue portfolio analysis that includes energy efficiency as a resource in the final consultant report and/or in future portfolio analysis work.

[1] The cost over the lifetime of energy efficiency initiatives undertaken during 2005 will be an average of 3.5¢/kWh (2006 PG&E, SCE, SDG&E, SCG Energy Efficiency Annual Reports, 2006 Annual Earnings Assessment Proceeding: A.06-05-016, et al. These data were compiled and a weighted average, based on respective lifetime energy efficiency savings, for the CA investor-owned utilities was calculated. This excludes Low Income Energy Efficiency programs.) The average cost of saved energy of PGC funded efficiency from 1990 to 1998 was about 2.5¢/kWh (Carter, Sheryl. "Investments in the Public Interest: California's Public Benefit Programs under Assembly Bill 1890." Natural Resources Defense Council, January 2000). 2006 cost per kWh for energy efficiency using ex ante estimates is 2.6 ¢/kWh, calculated using data presented in the quarterly IOU energy efficiency reports to the CPUC available at eega.cpuc.ca.gov.

4. The quantity of energy efficiency included in the portfolio analyses should be clearly defined in the final consultant report.

It is important that the quantity of energy efficiency included in any portfolio analysis work is clearly defined, including in the final consultant report. This is especially true in light of the ambiguity regarding the amount of energy efficiency included in the Commission's draft demand forecast. The draft consultant report currently notes an "expectation of achieving all predicted energy efficiency from currently funded programs" (p. 1). Is this defined as the lifecycle energy savings associated with the 2006-2008 CPUC IOU energy efficiency targets? Does the baseline energy demand include large amounts of embedded but not quantified (or qualified) energy efficiency, as the Commission's draft demand forecast appears to?[2] It is important that the amount of energy efficiency included in the final consultant report be clearly defined and quantified.

5. The draft staff report inaccurately describes Senate Bill 1368.

The draft staff report inaccurately describes SB 1368. The draft staff report notes that "D.06-02-032 indicated the CPUC's intent to develop a load-based greenhouse gas (GHG) emissions cap, required by Senate Bill 1368 (Perata)." (p. 4) However, the development of a load-based greenhouse gas emissions cap is required by AB 32, not SB 1368. As the paragraph on page 4 subsequently correctly described, SB 1368 established an emission performance standard for long-term financial commitments to baseload power. The emission performance standard required under SB 1368 has been implemented by the CPUC through D.07-01-039. The final staff report should be revised to more accurately describe SB 1368.

6. The long-term procurement plans summarized in Chapter 4 of the draft staff report may be out of date

The chapter 4 of the draft staff report notes the "chapter summarizes the planning activities and long-term procurement plans (LTPPs) filed by California IOUs at the CPUC on December 11, 2006" (p. 21). It is important to note that the IOUs filed

[2] NRDC will file more extensive comments on July 20, 2007 about the need to clearly define the incorporation of energy efficiency in the draft 2008-2018 demand forecast.

subsequent amendments and errata to their LTPPs, including on February 2, 2007 (PG&E and SCE) and February 16, 2007 (SDG&E), and errata on June 1, 2007 (SCE). We suggest that the Commission ensure important amendments are included in the LTPP summaries in the final staff report.

7. Conclusion

In conclusion, we thank the Commission for the work that has been done thus far on the use portfolio analysis and for the opportunity to comment on the issues discussed at the portfolio analysis workshop. We look forward to working with the Commission to further develop the use of portfolio analysis as a tool in California energy resource planning.